PROGRESS REPORT

PROCESSING OF HYPERSALINE BRINE

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There are several known areas in the Imperial Valley of California where geothermal brines having probable commercial value exist. The main ones being considered today are the Niland area, Heber area, East Mesa, and North Brawley. The bottom-hole temperatures and salinity of the brines from the different areas show wide variation.

The highest bottom-hole temperatures and highest salinity so far known are found in the Niland area. This area covers the largest area of proven ground so far known in this vicinity. This is the area considered as producing the Hypersaline Brines.

The bottom-hole temperature and salinity increase with depth. The highest temperature reported so far is 715°F in the I.I.D. Well No. 1 at a depth of 5,232 ft. The T.D.S. of this brine was reported as being approximately 300,000 ppm. The well that has been used to supply brine to the SDG&E Co., HETU, Magmamax Well No. 1 has a depth of 2,258 ft. with a bottom-hole temperature of 513°F and a T.D.S. of approximately 250,000 ppm together with considerable CO_2. The brine from the Niland area deposits a hard, rocklike scale, if used in a heat exchanger, at a rate that would require cleaning in about 100 hours operation. To overcome such a situation the brine is flashed in successive stages using the steam as the heating medium. The steam from the flash chambers entrains sufficient scale forming constituents making it necessary to water wash this steam before it is introduced into the heat exchangers. The flash brine carries a large percentage of the precipitated scale as a dilute slurry that largely settles in the flash chambers that can periodically be drained off.

The scale varies in composition as the temperature and pressures are reduced in the successive flash zones. Review of other methods of heat recovery from the brines.

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